

REMARKS/ARGUMENTS

This paper is in response to the Office Action dated April 25, 2008. Claims 1–17 are pending. Claims 1–6, 9, 10, and 13–17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,048,278 to Jones et al. (“Jones”) in view of U.S. Patent No. 6,401,344 to Moore et al. (“Moore”). Claims 7, 8, 11, and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones in view of Moore and further in view of U.S. Patent No. 6,581,292 to Allis. Applicants disagree with each of these rejections and respectfully request reconsideration of each of the claims in view of the following remarks.

New Claim 18

As a preliminary matter, Claim 18 has been added as a new claim depending from independent Claim 1. Claim 18 is supported by the specification, particularly by FIG. 4 of the present application.

Independent Claim 1

Independent Claim 1 relates to a cutting head having a passageway for a strand of cutting string and a movable locking element configured to lock the strand of cutting string in its passageway. The passageway is rectilinear and offset from a central axis of the head and opens at both ends at the periphery of the head. For example, FIG. 4 illustrates the general location of the passageway 112 with respect to the central axis C of the head. The broken line labeled A in FIG. 4 represents the axis along which the passageway 112 extends. You will notice that in FIG. 4 the axis A is offset from the central axis C and is situated a distance D from the central axis C.

Furthermore, the movable locking element is a one-way locking element that is configured such that “the strand of cutting string can be readily inserted into the passageway from a first end opening thereof and extracted from the passageway from the second end opening thereof.” For example, in FIG. 9, and as described in paragraphs [0081] and [0084] of the published application, a strand of cutting string 300 may be inserted into the opening 115 in the

direction of the arrow **F'** and may be removed from the passageway **112** through the opposite opening **113**. In this regard, if the strand of cutting string **300** is pulled in the direction opposite to the direction of the arrow **F'**, the one-way locking element would exert a gripping force on the strand.

Claims 2–18 depend from independent Claim 1 and thus incorporate all of the elements of Claim 1.

Rejection of Claims 1–6, 9, 10, and 13–17 under 35 U.S.C. § 103

Claims 1–6, 9, 10, and 13–17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones in view of Moore. Applicant respectfully submits that the rejection of Claims 1–6, 9, 10, and 13–17 is improper for the reasons given below.

As described above, independent Claim 1 is directed to a cutting assembly that includes a passageway that is “rectilinear and offset from a central axis of the head.” The cutting assembly further includes a movable locking element that is a “one way-locking element, whereby the strand of cutting string can be readily inserted into the passageway from a first end opening thereof and extracted from the passageway from the second end opening thereof.”

Jones discloses an apparatus for holding a plurality of flexible cutting filaments for cutting grass. The cutting blade **R** includes “a number of U-shaped passageways **12** disposed in the disk **8**,” as shown in FIGS. 1 and 3. Jones, col. 3, lines 4–7. In particular, each passageway **12** includes leg portions **16** and **17**, each extending radially outward from the centrally-located hub **2**. Col. 3, lines 11–12. Furthermore, each passageway **12** in Jones includes a structure **34** for locking the cutting filament **10** within its respective passageway **12**. The structure **34** includes two parallel, spaced apart wall portions **36**, **38** and a transverse wall portion **40**, illustrated in FIG. 5. A lock channel **42** is formed on each side of the transverse wall portion **40** “in which a central portion of the cutting filament **10** is wedged.” Col. 3, lines 48–56.

Moore discloses a head for a line trimming apparatus that includes a generally circular body member **2** with a filament channel **5** formed between first and second clamp walls **4**, **4a**. Moore, FIG. 3; col. 4, lines 13–18. The filament channel **5** is positioned so as to bisect the

body 2 into substantially equal halves. Col. 4, line 19. A filament clamp 15 is slidably disposed between the body 2 and a cover 26. As shown in FIG. 4, the clamp 15 has clamp arms 17 that each includes a filament opening 22 for threading the filament therethrough. Col. 5, lines 20–25, lines 38–45; col. 7, lines 27–29. Actuation of a clamp button 21 of the filament clamp 15 moves the filament clamp 15 against a spring 25 and allows a trimming filament 39 to be threaded through the filament channel 5 and the filament openings 22 of the filament clamp 15. Col. 6, lines 38–52. Upon release of the clamp button 21, the clamp 15 slides into place and presses the trimming filament 39 against the first clamp wall 4 to secure the filament 39 in the filament channel 5. Col. 6, lines 52–63.

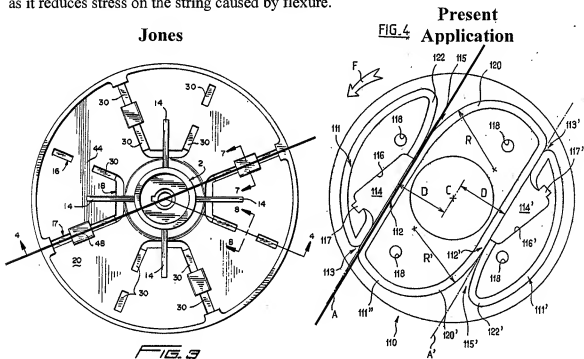
As further explained below, neither reference teaches or suggests a passageway that is rectilinear and offset from a central axis of the head, as recited in independent Claim 1. Furthermore, neither reference teaches or suggests a movable locking element that is a one-way locking element, as recited in independent Claim 1. Therefore, Claim 1 and the claims that depend therefrom are patentable over the cited references.

1. Neither Jones nor Moore teaches or suggests a passageway that is rectilinear and offset from a central axis of the head.

In contrast to Claim 1, Jones does not teach or suggest a passageway that is rectilinear and offset from a central axis of the head. In Jones, the passageway 12 is arranged to extend radially outward from the centrally located hub. Jones, col. 3, lines 11–12. This necessarily means that the passageway is not offset from the central axis.

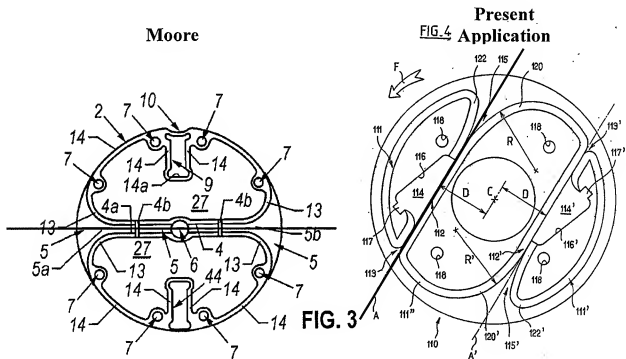
This can be readily understood by comparing FIG. 3 of Jones with FIG. 4 of the present application, both of which are reproduced below for the Examiner's easy reference with the axis of the respective passageways emphasized. For example, in FIG. 3 of Jones, line 4-4 demarcating the cross-sectional view for FIG. 4 of Jones is drawn along the axis of a leg portion 17 of the passageway at the left side of the disk and the axis of a leg portion of the passageway at the right side of the disk. The left and right segments of the line 4-4 intersect at the center of the disk, demonstrating the alignment of the leg portions of the passageways with

the central axis of the hub 2. In contrast, and with reference to FIG. 4 of the present application, the passageway 112 is offset from the central axis of the head C, for example by a distance **D**. As a result, the present application allows for a curved bearing zone **120** with a radius of curvature **R** that is greater than one that could be achieved, as in the prior art, with a passageway that is not offset from the central axis but rather extends geometrically from the central axis. The increased radius of curvature provides for a reduction of the fatigue of the strand of cutting string as it reduces stress on the string caused by flexure.



Moore, likewise, does not teach or suggest a passageway that is rectilinear and offset from a central axis of the head. In Moore, a filament channel 5 is delimited by “diametrically opposed” openings 5a and 5b. Moore, col. 4, lines 16–17. In other words, in Moore, the openings of the filament channel 5 are located on opposite ends of a diameter of the head 1, as shown in FIG. 3 of Moore. By definition, the diameter cannot be offset from the central axis. As a result, the filament channel 5 “bisects the body 2 into substantially equal halves.” Col. 4, line 19 (emphasis added). Comparing FIG. 3 of Moore with FIG. 4 of the present application,

both reproduced below with the axis of the respective passageways emphasized, it is readily apparent that the filament channel 5 of Moore passes through a central axis of the body 2, whereas the passageway 112 of the present application is offset from the central axis C of the head. Thus, Moore does not cure the deficiency of Jones, and neither reference teaches or suggests a passageway that is rectilinear and offset from a central axis of the head, as recited in Claim 1.



2. Neither Jones nor Moore teaches or suggests a movable locking element that is a one-way locking element.

Jones does not teach or suggest a movable locking element that is a one-way locking element and that allows a strand of cutting string to be readily inserted into the passageway from a first end opening and extracted from a second end opening. Rather, in Jones, the cutting filament 10 is slid into the passageway 12 from either one of the two openings 52, 54 until a first

intermediate portion **62** of the filament **10** is secured in the leg portion **17** and a second intermediate portion **64** is secured in the leg portion **16**. Jones, FIGS. 5 and 6; col. 4, lines 22-30. A third intermediate portion **66** of the filament **10** is then “wedged into the locking channels **42** at the base portion of the passageway **12**.” Col. 4, lines 30–32. In this way, a portion **66** of the cutting filament **10** is moved toward the stationary locking structure **34**, rather than the structure **34** being moved into engagement with the filament **10**.

Furthermore, through engagement of the filament with the locking channels **42** of Jones, “the cutting filament **10** is thereby prevented from working itself loose from the passageway **12**.” Col. 4, lines 32–34. In other words, once engaged with the stationary locking structure **34**, the filament of Jones may not be extracted from either opening **52, 54**. In contrast, the movable locking element of the present application is a one-way locking element. Thus, a strand of cutting string can be readily inserted into the passageway from a first end opening of the passageway and extracted from the passageway from the second end opening.

Similarly, Moore does not teach or suggest a one-way locking element. In Moore, a clamp edge **22a** of each parallel arm segment **20** of the filament clamp **15** serves to “press the trimming filament **39** against the first clamp wall **4**, thus securing the trimming filament **39** in the filament channel **5**.” Moore, FIGS 4 and 8; col. 6, lines 60–63. Once secured, the trimming filament **39** of Moore cannot be extracted, through either opening (**5a** or **5b**), until the clamp button **21** is pressed to displace the filament clamp **15** and release the trimming filament **39**. Col. 7, lines 21–27. Therefore, Moore does not disclose a one-way locking element and, thus, does not cure the deficiency of Jones.

Rejection of Claims 7, 8, 11, and 12 under 35 U.S.C. § 103

Claims 7, 8, 11, and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones in view of Moore and further in view of Allis. Allis does not cure all of the deficiencies of Jones or Moore. Claims 7, 8, 11, and 12 depend from independent Claim 1. Therefore, for at least the reasons described above, the rejection of Claims 7, 8, 11, and 12 are respectfully traversed.


CONCLUSION

In view of the remarks presented above, it is respectfully submitted that independent Claim 1 and all the claims depending therefrom (*i.e.*, Claims 2–18) are in condition for allowance. It is respectfully requested that a Notice of Allowance be issued in due course. The Examiner is requested to contact Applicants' undersigned attorney to resolve any remaining issues in order to expedite examination of the present application.

The patentability of the independent claims has been argued as set forth above, and thus Applicants will not take this opportunity to argue the merits of the rejection with regard to specific dependent claims. However, Applicants do not concede that the dependent claims are not independently patentable and reserve the right to argue the patentability of dependent claims at a later date if necessary.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefor (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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